SECTION 1: Identification

1.1. Identification
Product name: COPPER(II) METHOXYETHOXYETHOXIDE, 10-12% in methoxyethoxyethanol
Product code: AKC255
Product form: Mixture
Physical state: Liquid
Formula: C10H22CuO6
Synonyms: CUPRIC METHYLDIETHYLENEGLYCOLATE
Chemical family: METAL ESTER

1.2. Recommended use and restrictions on use
Recommended use: Chemical intermediate

1.3. Supplier
GELEST, INC.
11 East Steel Road
Morrisville, PA 19067
USA
T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST
info@gelest.com - www.gelest.com

1.4. Emergency telephone number
Emergency number: CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture
GHS-US classification
Flammable liquids Category 4 - H227 Combustible liquid
Skin corrosion/irritation Category 2 - H315 Causes skin irritation
Serious eye damage/eye irritation Category 2 - H319 Causes serious eye irritation
Reproductive toxicity Category 2 - H361 Suspected of damaging fertility or the unborn child
Full text of H statements: see section 16

2.2. GHS Label elements, including precautionary statements
GHS US labeling
Hazard pictograms (GHS US):
Signal word (GHS US): Warning
Hazard statements (GHS US): H227 - Combustible liquid
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H361 - Suspected of damaging fertility or the unborn child
Precautionary statements (GHS US): P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P260 - Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P321 - Specific treatment (see first aid instructions on this label)
P362+P364 - Take off contaminated clothing and wash before reuse.
P370+P378 - In case of fire: Use water spray to extinguish.
P403+P235 - Keep in a cool place
P405 - Store locked up.
P501 - Dispose of contents/container to licensed waste disposal facility.

2.3. Hazards not otherwise classified (HNOC)
No additional information available
**COPPER(II) METHOXYETHOXYETHOXIDE, 10-12% in methoxyethoxyethanol**

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### 2.4. Unknown acute toxicity (GHS US)

Not applicable

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### SECTION 3: Composition/Information on ingredients

#### 3.1. Substances

Not applicable

#### 3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methoxyethanol</td>
<td>(CAS-No.) 111-77-3</td>
<td>88-90</td>
<td>Flam. Liq. 4, H227 Eye Irrit. 2A, H319 Repr. 2, H361</td>
</tr>
<tr>
<td>Copper II methoxyethoxyethoxide</td>
<td>(CAS-No.) not found</td>
<td>10-12</td>
<td>Skin Irrit. 2, H315 Eye Irrit. 2A, H319</td>
</tr>
</tbody>
</table>

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### Full text of hazard classes and H-statements: see section 16

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### SECTION 4: First-aid measures

#### 4.1. Description of first aid measures

- **First-aid measures general**
  - Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

- **First-aid measures after inhalation**
  - Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a physician.

- **First-aid measures after skin contact**
  - Wash with plenty of soap and water. Get medical advice/attention.

- **First-aid measures after eye contact**
  - Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.

- **First-aid measures after ingestion**
  - Never give anything by mouth to an unconscious person. Get medical advice/attention.

#### 4.2. Most important symptoms and effects (acute and delayed)

- **Symptoms/effects after inhalation**
  - May cause irritation to the respiratory tract.

- **Symptoms/effects after skin contact**
  - Causes skin irritation.

- **Symptoms/effects after eye contact**
  - Causes serious eye irritation.

- **Symptoms/effects after ingestion**
  - May be harmful if swallowed.

#### 4.3. Immediate medical attention and special treatment, if necessary

No additional information available

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### SECTION 5: Fire-fighting measures

#### 5.1. Suitable (and unsuitable) extinguishing media

- **Suitable extinguishing media**

- **Unsuitable extinguishing media**
  - Do not use straight streams.

#### 5.2. Specific hazards arising from the chemical

- **Fire hazard**
  - Combustible liquid. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

#### 5.3. Special protective equipment and precautions for fire-fighters

- **Firefighting instructions**
  - Exercise caution when fighting any chemical fire. Use water spray to cool exposed surfaces.

- **Protection during firefighting**
  - Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapor and mist.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

- **General measures**
  - Remove ignition sources. Use special care to avoid static electric charges.

  **6.1.1. For non-emergency personnel**
  - Protective equipment
    - Wear protective equipment as described in Section 8.
  - Emergency procedures
    - Evacuate unnecessary personnel.

  **6.1.2. For emergency responders**
  - Protective equipment
    - Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

- **Environmental precautions**
  - Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.
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6.3. Methods and material for containment and cleaning up
For containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up: Clean up any spills as soon as possible, using an absorbent material to collect it. Use only non-sparking tools.

6.4. Reference to other sections
See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Additional hazards when processed: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Precautions for safe handling: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid all eye and skin contact and do not breathe vapor and mist. Ground/bond container and receiving equipment. Provide good ventilation in process area to prevent accumulation of vapors. Use only non-sparking tools.
Hygiene measures: Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Keep container tightly closed. Keep in a cool place. Store locked up.
Incompatible materials: Air. Water.
Storage area: Store in a well-ventilated place. Store away from heat.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
No additional information available

8.2. Appropriate engineering controls
Appropriate engineering controls: Provide local exhaust or general room ventilation.

8.3. Individual protection measures/Personal protective equipment
Personal protective equipment:
Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Avoid all unnecessary exposure.

Hand protection:
Neoprene or nitrile rubber gloves

Eye protection:
Chemical goggles. Contact lenses should not be worn

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified organic vapor (black cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
Physical state: Liquid
Appearance: Liquid.
Molecular mass: 301.83 g/mol
Color: Blue-green.
Odor: No data available
Odor threshold: No data available
Refractive index: No data available
pH: No data available
Relative evaporation rate (butyl acetate=1): No data available
Melting point: 183 - 184 °C

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Freezing point: No data available
Boiling point: 194 °C (initial)
Flash point: 84 °C
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Flammability (solid, gas): Combustible liquid
Vapor pressure: No data available
Relative vapor density at 20 °C: > 1
Relative density: 1.042
% Volatiles: > 70 %
Solubility: Reacts with water.
Log Pow: No data available
Log Kow: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosive properties: No data available
Oxidizing properties: No data available
Explosion limits: No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
Material decomposes on contact with air by reaction with water.

10.4. Conditions to avoid
Heat. Sparks. Open flame.

10.5. Incompatible materials
Air. Water.

10.6. Hazardous decomposition products
Organic acid and organic vapors. Copper oxide fumes.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Not classified

Methoxyethoxyethanol (111-77-3)

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral mouse</td>
<td>8222 mg/kg</td>
</tr>
<tr>
<td>LD50 oral rabbit</td>
<td>9190 mg/kg</td>
</tr>
<tr>
<td>LD50 oral guinea pig</td>
<td>4160 mg/kg</td>
</tr>
<tr>
<td>LD50 intraperitoneal rat</td>
<td>2722 mg/kg</td>
</tr>
<tr>
<td>LD50 intravenous mouse</td>
<td>2611 mg/kg</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Causes skin irritation.
Serious eye damage/irritation: Causes serious eye irritation.
Respiratory or skin sensitization: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified

None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

Reproductive toxicity: Suspected of damaging fertility or the unborn child.
Specific target organ toxicity – single exposure: Not classified
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Specific target organ toxicity – repeated exposure: Not classified
Aspiration hazard: Not classified
Symptoms/effects after inhalation: May cause irritation to the respiratory tract.
Symptoms/effects after skin contact: Causes skin irritation.
Symptoms/effects after eye contact: Causes serious eye irritation.
Symptoms/effects after ingestion: May be harmful if swallowed.
Reason for classification: Expert judgment

SECTION 12: Ecological information
12.1. Toxicity
No additional information available
12.2. Persistence and degradability
No additional information available
12.3. Bioaccumulative potential
No additional information available
12.4. Mobility in soil
No additional information available
12.5. Other adverse effects
Effect on the ozone layer: No additional information available

SECTION 13: Disposal considerations
13.1. Disposal methods
Sewage disposal recommendations: Do not dispose of waste into sewer.
Product/Packaging disposal recommendations: Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.
Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information
14.1. UN number
DOT NA no.: NA1993
14.2. UN proper shipping name
Transport document description: NA1993 Combustible liquid, n.o.s. (COPPER(II) METHOXYETHOXYETHOXIDE, 10-12% in methoxyethoxyethanol), 3, III
Proper Shipping Name (DOT): Combustible liquid, n.o.s. (COPPER(II) METHOXYETHOXYETHOXIDE, 10-12% in methoxyethoxyethanol)
Class (DOT): 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Packing group (DOT): III - Minor Danger
DOT Packaging Non Bulk (49 CFR 173.xxx): 203
DOT Packaging Bulk (49 CFR 173.xxx): 241
DOT Packaging Exceptions (49 CFR 173.xxx): 150
DOT Symbols: D - Proper shipping name for domestic use only, or to and from Canada,
G - Identifies PSN requiring a technical name

14.3. Additional information
Other information: This product is Combustible as defined by the US Department of Transportation (DOT). It is regulated for transport in the US in container > 119 gallons (450 liters). The product is not regulated for transport by the IATA, ADR/RID, ADNR or the IMDG regulations.

Transport by sea
DOT Vessel Stowage Location: A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.

Air transport
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27): 60 L
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DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)

SECTION 15: Regulatory information

15.1. US Federal regulations

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TSCA Exemption/Exclusion

CAUTION: This material is supplied for research and development purposes subject to the R&D exemption under TSCA, 40 CFR 720.36, and must meet the requirements of the exemption, including supervision by a "technically qualified individual" as defined by 40 CFR 720.3(ee). The use of this material for "commercial purposes" as defined by 40 CFR 720.3(r) is not permitted in the United States.

<table>
<thead>
<tr>
<th>Methoxyethoxyethanol (111-77-3)</th>
<th>Listed on the United States TSCA (Toxic Substances Control Act) inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper II methoxyethoxyethoxide (not found)</td>
<td>Not listed on the United States TSCA (Toxic Substances Control Act) inventory</td>
</tr>
</tbody>
</table>

15.2. International regulations

CANADA

Methoxyethoxyethanol (111-77-3)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Methoxyethoxyethanol (111-77-3)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Methoxyethoxyethanol (111-77-3)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on CICR (Turkish Inventory and Control of Chemicals)
Listed on INSQ (Mexican National Inventory of Chemical Substances)

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

Full text of H-phrases:

- **H227**: Combustible liquid
- **H315**: Causes skin irritation
- **H319**: Causes serious eye irritation
- **H361**: Suspected of damaging fertility or the unborn child

Abbreviations and acronyms:

- **ND**: Not Determined, **No Data**
- **NA**: Not Applicable
- **LD**: Lethal Dose
- **LC**: Lethal Concentration
- **ATE**: Acute Toxicity Estimates
- **H**: hour, **°**: °C unless otherwise stated
- **mm**: millimeters Hg, torr
- **PEL**: permissible exposure level
- **TWA**: time weighted average
- **TLV**: threshold limit value
- **TG**: Test Guideline
- **NIOSH**: National Institute for Occupational Safety and Health
- **IARC**: International Agency for Research on Cancer
- **NTP**: National Toxicology Program
- **HMIS**: Hazardous Material Information System
- **CAS No.**: Chemical Abstract Service Registration Number
- **EC No.**: European Commission Registration Number
- **EC Index No.**: European Commission Index Number
- **OECD**: The Organisation for Economic Co-operation and Development
- **GHS**: The Globally Harmonized System of Classification and Labelling
- **APF**: Assigned Protection Factor

**Hazard Rating**

**Health**: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

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Flammability
- 2 Moderate Hazard - Materials which must be moderately heated or exposed to high ambient temperatures before ignition will occur. Includes liquids having a flash point at or above 100 F but below 200 F. (Classes II & IIIA)

Physical
- 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Prepared by safety and environmental affairs.

Date of issue: 11/08/2017 Revision date: 04/08/2019 Version: 1.1

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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